

The Role of the Savannah River Technology Center in FY98 Performance Based Incentives

The primary mission of the Savannah River Technology Center (SRTC) is the delivery of applied research and development support for DOE missions assigned to the Savannah River Site (SRS). This requires that SRTC conduct applied research and development activities to provide the technical basis, understanding, and advanced capabilities for safe, environmentally sound, high quality, and cost effective SRS operations. Although it is not stated in the non-SRTC PBIs, it is implicit that SRTC supports and even shares the lead in the success of the majority of the mission related PBIs. SRTC has a strong role in the support of site missions, both current and future, and is an intimate part of the success of Savannah River Site. SRTC plays a critical support role on PBIs involving High Level Waste Management, including the Defense Waste Processing Facility (DWPF) and In-Tank Precipitation (ITP), Spent Nuclear Fuel Alternate Technology and Cask Processing, Environmental Programs, and Tritium Programs. Specific examples of how SRTC supports, and in some cases shares the lead in the accomplishment of the PBI objectives are described below.

SRTC has a major role in the success of the PBI for producing canisters in DWPF, and increasing the attainment rate. SRTC is developing a "less oxidizing" melter feed composition to reduce melter foaming and increase melt rate and is instrumental in implementation of the flow sheet modification and implementation of automatic control of melter temperature which will improve operational stability resulting in an increased melt rate. Additionally, SRTC will continue improvements of the melter pour spout and insert design and insert tooling. SRTC provides welding consultation for the upset welding process developed by SRTC for DWPF, materials evaluation and consulting for issues such as wicking, pouring and corrosion, and technical support for other materials issues such as pour spout performance analysis. In order to provide adequate feed for DWPF, SRTC will verify DWPF operating conditions for Blended Tank 42/51 feed and adjust as required and provide analytical support for process control and glass quality for routine operations. Method improvements for the DWPF Lab to increase productivity in support of plant operations are also supported by SRTC.

SRTC is a lead in the PBI objective for In-Tank Precipitation operations. SRTC is a lead in the chemistry program to support restart of ITP and to support continued salt processing. SRTC will continue work to identify and control catalytic decomposition of tetraphenylborate and define benzene retention and release mechanisms which are necessary to support operations. This work will be used to define potential flowsheet modifications and process control improvements. SRTC will continue to support the development of the ITP authorization basis. Additional work includes support of new methods to suspend saltcake and improve removal systems.

SRTC plays a support role in the PBI to incinerate 2.7 million pounds of waste at the Consolidated Incinerator Facility (CIF). SRTC provides analytical support for special waste analyses of feed material and technical support for Defense Nuclear Facilities Safety Board rad-document plans, as well as chemistry and materials consultation to CIF.

SRTC plays a strong role in the accomplishment of the Spent Nuclear Fuel (SNF) alternate technology PBI. SRTC is co-lead for developing the business plan for a proposed SNF facility and directs the technology development portion of the SNF Alternate Technology program. They

will develop the functional performance requirements for melt & dilute, direct co-disposal, and characterization. The deliverables constituting this PBI are predominantly SRTC scope.

SRTC supports the PBI for the spent nuclear fuel off-site cask processing program. They provide technical support in Fuel monitors, and bum-up measurements. Additionally, SRTC will provide fuel inspection and storage support for the cask processing program and fuel handling tools as required for unloading and moving fuel within the basins.

SRTC is providing significant support of the PBI to accomplish regulatory-driven environmental restoration work scope above the AOP funded level. This will require analytical and technical support for ERJSW in characterization and field measurements; upgrade of the Flow and Contaminant Transport (FACT) Model to enhance regulatory credibility for proposed actions and decrease time to remediation and support of GIS subsurface characterization and analysis and provide faster, inexpensive monitoring options.

SRTC is supporting the PBI for Pollution Prevention through contamination area rollbacks. They will identify candidate innovative and cost effective cleanup, sensor, monitoring, characterization, and assessment technologies and methods that have the potential to accelerate cleanup at SRS; provide technical assistance in the deployment and performance evaluation of innovative technologies selected; and develop methods for characterizing wastes to aid in most efficient disposal options.

SRTC will provide significant support of the PBI to accelerate completion and qualification of Loading Line 6 for War Reserve (WR) Loading of ACORN reservoirs. They will write the loading calculations for ARMS (Automated Reservoir Management System) and support the cleaning and loading of the qualification reservoirs and eventually function test the qualification units. SRTC will conduct startup, pre-operational checkout, calibrations and turnover to operations of developed systems for this activity.

SRTC is also crucial in the success of the PBI for early deactivation of 232-H. SRTC will develop technology to measure tritium contamination in concrete to allow lowest cost disposal options. SRTC is also responsible for designing and setting up a process for desorption of one of the Pinellas Uranium beds by the end of 1998; support of the spent melt overpack procurements and design improvements and support of sequential isolation of process equipment through instrumentation, electrical and mechanical systems consulting.

While the line organization PBIs provide incentive to SRTC for mission support, the purpose of the PBIs directed specifically at the SRTC provide incentive for the preservation and enhancement of core competencies. The incentives for SRTC were developed to ensure the continued viability of the lab to help ensure the excellence of the lab and its researchers.

A goal is to maintain off-site funding at approximately 50% of the SRTC budget. Off-site funding is defined as work for Other DOE Contractors, Sites or DOE-HQ Programs, other than those that provide direct funding to the SRS program organizations, and also Work for Others, which includes work for Other Federal Agencies and Commercial Customers. Off-site funding contributes to cost effectiveness and helps defray costs to the line organizations. Off-site work keeps the lab and its researchers actively involved in challenging issues, increases their scientific

and technical capabilities, while keeping them available to address site problems. This reduces overheads and makes better use of lab facilities. Clearly, work for Other DOE Contractors, Sites or DOE-HQ Programs will constitute the bulk of off-site funding. The goal is not to compete for DOE business but to provide options to DOE by making unique SRTC services available throughout the DOE complex so that these services do not have to be duplicated elsewhere. This is consistent with **EM 2006, Accelerated Cleanup: Focus on 2006 Plan** in that it promotes cleanup of the complex in a cost effective manner. It is also consistent with the **Complex-Wide EM** Integration goals. The performance of work for Other Federal Agencies accomplishes similar objectives. That is, unique capabilities are made available that do not have to be duplicated. Commercial work is anticipated to remain a relatively minor component due to regulations against competing with the private sector. Nevertheless, where SRTC has unique capabilities, commercial work provides value to US Industry and the taxpayers. A prime example is the current support being provided to BNFL in the Tank Waste Remediation contract at the Hanford site. SRTC is providing vitrification expertise which is not available elsewhere in the US to BNFL in this privatization effort. The work retains and enhances the vitrification core competency at SRTC, retaining it to support operations at the Defense Waste Processing Facility, while making it available to support work at the Hanford site.

Recognition for Awards and Publications provides incentives for excellence in SRTC research. Professional recognition for the researchers provides motivation for outstanding performance by the researchers and provides credibility to SRTC. It allows for retention of high caliber scientists, thus supporting the preservation of core competencies. Incentives for technology accomplish similar objectives. Invention and copyright disclosures provide similar recognition as awards and publishers in that it provides an affirmation of the quality of the research and stimulates creativity. The licensing of technology provides benefits to US Industry and to the taxpayers for the dollars spent on federal research.

In summary, the SRTC directed PBIs are intended to be complimentary and to provide balance to the line organization PBIs. SRTC has a clear responsibility to provide support to accomplish SRS missions in the line organization developed PBIs. The SRTC directed PBI's are intended to preserve core competencies utilizing outside sources of funding, by making the unique capabilities of SRTC available and facilitating the interchange of ideas with outside entities.

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